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TECHNICAL MEMORANDUM NO. 1

PROJECT: Pre-Design Investigation
Albion-Sheridan Township Landfill

SUBJECT: Test Pit Excavation Program to Further Characterize Landfill Extent of Waste

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INTRODUCTION

The purpose of this technical memorandum is to describe the subsurface site characterization activities to be conducted at the Albion-Sheridan Township Landfill (ASTL). The test pit excavation program is proposed to supplement the Pre-Design Field Investigation activities identified in the RD Work Plan dated June 1996. The objective of these activities is to provide additional necessary information regarding the vertical and horizontal extent of waste in order to make a reasonable early design decision regarding movement of waste to consolidate the footprint of the cover system (to attain substantial construction cost savings) and to estimate the extent of the cover system design. These activities will be scheduled concurrently with other Pre-Design Studies (monitoring well installation/groundwater sampling) to optimize efficiency. The monitoring well installation/subsurface characterization/groundwater sampling is tentatively scheduled starting the week of August 5, 1996.

FIELD PROCEDURES

Figure 1 identifies preliminary locations of test pits around the perimeter of the landfill and of test pits on the interior of the landfill. Test pitting will be conducted according to the attached Standard Operating Procedure (SOP-09). Prior to excavation, an exclusion zone and support zone will be established. Ambient air conditions as specified in Section 6 of the Site Health and Safety Plan (HASP) will be assessed. Personal protective equipment (PPE) will be as described in Section 7 of the HASP. Work will be conducted according to action levels described in the HASP.

During the excavation of each test pit, the backhoe will lightly scrape the ground surface to assess whether drums or other potentially hazardous materials are present. The backhoe will continue this operation until native soils underlying the waste have been reached. The test pit will be one bucket wide by the length appropriate to maintain an open excavation. Near surface materials will be segregated in order to facilitate the return of these material to the top

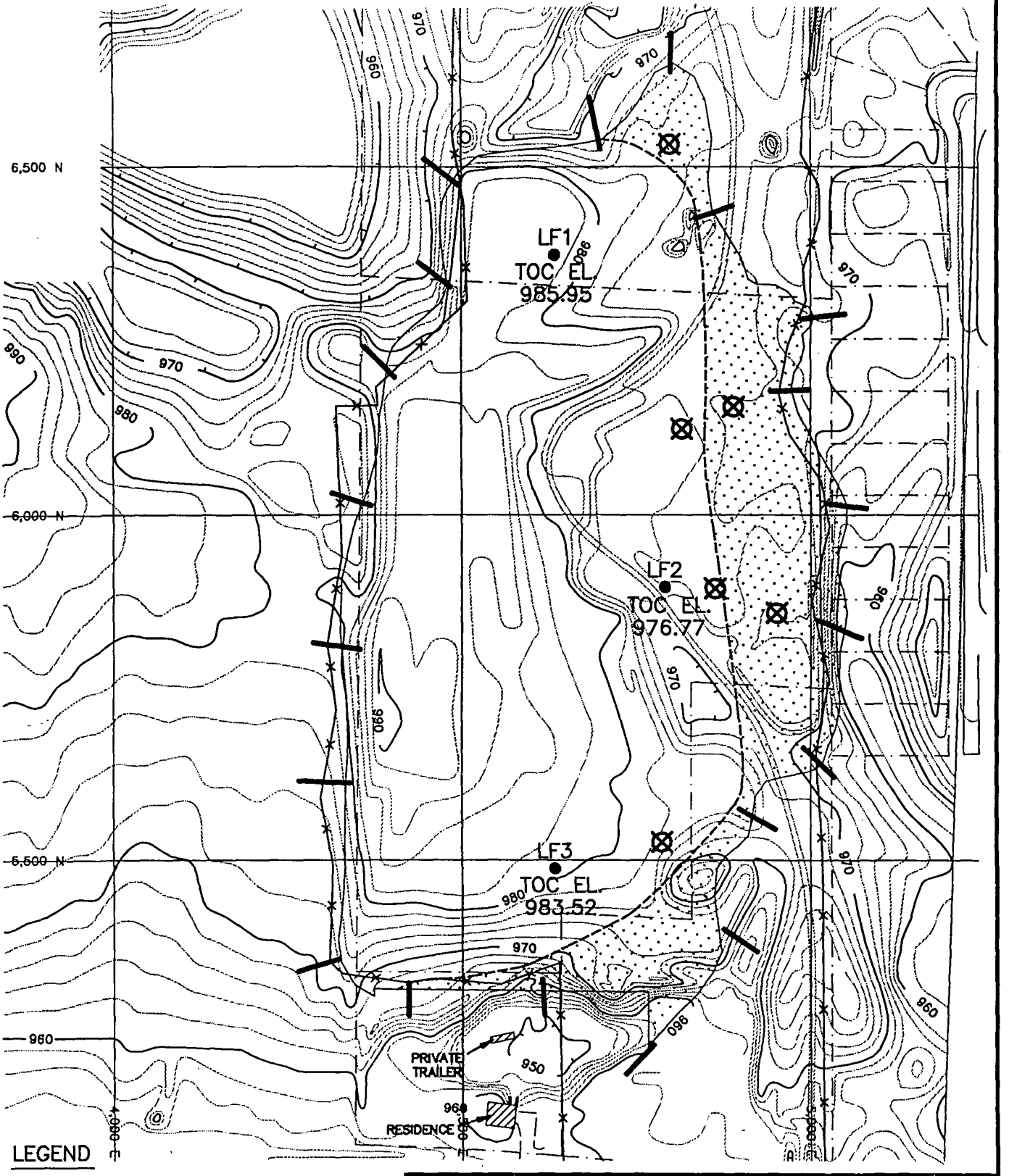
of the test pit. The test pit will be filled immediately following documentation of native soils by placing the excavated material back in the test pit in the same sequence as it was removed.

Ambient air monitoring will be conducted within the exclusion zone for the parameters detailed in Section 6 of the HASP. The observer will be stationed 20 ft (upwind) from the test pit during excavation activities. After excavation has ceased the observer will monitor breathing space and, if ambient air conditions are within action levels, will move adjacent to test pit to photo document and log test pit. Below waste native soils will be evaluated from an undisturbed sample collected by the backhoe and placed a short distance from the test pit on the landfill surface.

If hazardous or potentially hazardous materials are encountered or action levels are exceeded, the test pit will be immediately backfilled. An additional test pit will be conducted nearby.

Following assessment of the perimeter test pit results, interior test pits as identified in Figure 1 will be required to fully optimize the design of the footprint reduction. The interior test pits will be constructed in the same manner. It is not anticipated that the interior test pits will need to be greater than 15 feet deep because preliminary assessments indicate relocating waste with depths of more than 10-15 feet may not be cost effective.

Following completion of the excavations, the test pit locations will be surveyed in order to document location and elevation for remedial design and analysis purposes.



LEGEND

- 960 — TOPOGRAPHIC CONTOUR
- EXTENT OF WASTE
- PERIMETER PIT LOCATION
- INTERIOR TEST PIT LOCATION
- PRELIMINARY AREA OF WASTE RELOCATION

200 0 200

SCALE IN FEET

7013FIG1.DWG

Woodward-Clyde Consultants

ENGINEERS, GEOLOGISTS, AND ENVIRONMENTAL SCIENTISTS

SUBSURFACE INVESTIGATION

DRN BY: SWH	DATE: JULY 1996	PROJECT NO. 13045	FIG. NO. 1
DESIGNED LGH	DATE: JULY 1996		

1.0 OBJECTIVE

This document defines the standard procedure for excavating test pits in a landfill environment to assist in further characterization of the extent of waste. The objective of the additional extent of waste characterization is to assist in making a reasonable decision regarding movement of waste to consolidate the landfill footprint and to estimate edge of waste for cover design. This procedure describes equipment and field procedures necessary to excavate test pits. Standard Operating Procedure 08 (SOP) of the Pre-Design Field Sampling Plan (FSP) describes decontamination procedures which are applicable to this SOP.

2.0 EQUIPMENT AND PERSONNEL

The following is a list of equipment that will be necessary to excavate test pits:

- Backhoe capable of excavating 20 ft below grade with sand bucket (no teeth)
- Level D and Level C personal protective equipment for Backhoe operator and two WCC personnel
- Air monitoring equipment as specified in Section 6 of the HASP
- Camera
- Field logbooks

All onsite personnel will be qualified according to the HASP.

3.0 PROCEDURES

This section describes the sequence of events to follow for excavating test pits. Onsite personnel will be equipped with PPE and ambient air monitoring equipment as directed by the HASP. Work will be conducted according to action levels described in HASP.

- At least 3 days prior to initiating intrusive activities, "MISS DIG" (1-800-482-7171) will be notified to allow public utilities to identify their underground utilities.

- Establish responsibilities of each team member. The team must include a person to monitor air at pitside, act as an observer to give direction to the backhoe operator and to record excavation observations. An additional team

member will be stationed nearby (outside of the exclusion zone) to act as a safety backup.

- Establish hand signals for communication before beginning excavation.
- Position backhoe operator/observer upwind. Begin air monitoring before excavation begins. Record monitoring results every 15 minutes for each test pit. ***Monitoring results above HASP Level C Action Levels will result in cessation of work.***
- Observer near pit must remain visible to backhoe operator and safety backup and not move about during test pit excavation.
- Observer must record observations in log book and photo document materials coming out of the pit. The observer will stop the excavating while documenting the pit.
- The test pit will not be entered by any team member at anytime
- When native soils are encountered and observed, the excavation will stop. The test pit will be back-filled with excavated material in the reverse sequence as they were removed upon documentation of reaching native soils. All waste will be covered with uncontaminated cover material.
- The backhoe (and any support vehicles) will be decontaminated at the conclusion of the last test pit excavation according to SOP-08 of the FSP

3.1 Horizontal Extent of Waste

Define horizontal extent of waste at 200' intervals or less. Where edge of waste changes direction sharply, intervals will be 100' or as determined in field to establish limits of cover. Define amount of cover material near the edge of waste to provide information for grading and stormwater control plan.

- Observe site and mark with stakes estimated extent of waste using typical features of landfill (sharp changes in topography not consistent with natural setting, subsidence or cracking of soils), previous work, (ie. E.M. survey) or discussions with persons familiar with site.

- Choose portion of the perimeter where edge of waste is estimated with higher degree of confidence and begin test pit procedures.

- Construct test pit from "outside" into waste. If waste is encountered in first area, abandon and move out far enough to be outside waste. The objective is to test pit through native soils horizontally into edge of waste.

- Construct test pit 4' deep (if consistent with the amount of cover material near edge of waste) towards waste until a definite "lift" of waste is encountered. A lift of waste is defined as a layered section of waste approximately one foot or greater in depth. MSW landfills typically have fugitive waste scattered intermittently around the perimeter. Fugitive waste is wind borne or moved by other means in small quantities and is usually mixed with the soils. Fugitive waste will not have a layer appearance and will not be included under cover system.

- At edge of waste set a temporary benchmark (TBM) (2"x2"x2') driven with 6" stickup. Using hand level determine depth below TBM of bottom of waste and bottom of cover material. Mark TBM with painted lath with TBM identification, company name, and date for later survey.

- Backfill test pit with disturbed waste first and finally uncontaminated cover material so cover material is the same thickness as existing conditions

- During test pit activities monitor breathing zone of observer every 15 minutes and conduct operations according to the action levels identified in the HASP.

3.2 Vertical Extent Of Waste

- Define vertical extent of waste in areas where waste consolidation is planned or seems appropriate during field observation.

- Observe site and mark locations of test pits in areas where waste relocation is planned or is reasonable from field observation. Preliminary estimates indicate relocation of waste more than 15 ft deep is not economically feasible. Preliminary estimates of bottom of waste may be shown by three leachate head wells (LHW). Vertical depths of waste can then be estimated using surface elevations from hand level survey. A "line" of test pits should be established from the outer most point of area to be relocated towards the middle of the fill (or LHW if appropriate). A test pit should be constructed every 100' along the line. Once the line is established one or two test pits should be constructed intermediate of the other pits to confirm no sharp changes in bottom of waste elevations exist.

- Confirm native materials below waste. Mark location of test pit or bore hole with TBM. Mark TBM with painted lath with I.D. of TBM, company name, and date for later survey.

- During test pit operations, monitor breathing space of observer and driller every 15 minutes and conduct operations according to action levels established in the HASP.

4.0 DOCUMENTATION

This section describes the documentation necessary for excavating test pits.

Field data sheets or field logs will include date, time, test pit number, photolog, description of materials in excavation, air monitoring readings by depth of excavation and time intervals, personnel present during excavation, and depth of excavation to natural soils. The data sheets or log book shall be neat and legible, and shall be signed and dated by the person completing the documentation.